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ABSTRACT

The findings presented here are part of a longitudinal, prospective study investigating factors associated with infants, parents, interactions, and environments which account for developmental outcomes in a sample of high-risk children. In a group of 96 children observed in preschool at age 4 1/2, 31 compliant and 22 extremely noncompliant children were identified and compared on a wide range of earlier and concurrent measures. In general, results highlight the importance of a warm, secure, supportive relationship between caregiver and child, within the context of a stimulating but organized learning environment at home, for fostering the child's compliance in preschool. Concurrent measures showed that compliant children also had better ego control, displaying fewer negative emotions and more positive affect in preschool than did noncompliant children. Among noncompliant children considerable variability existed on these measures. (Author/RH)

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Antecedents and Concomitants of Compliance in High-Risk Preschool Children

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Abstract

These findings are part of a longitudinal, prospective study designed to determine the infant, parental, interactional, and environmental factors that account for developmental outcomes for a sample of high-risk children. Of 96 children observed at age 4-1/2 in preschool, 31 compliant and 22 extremely noncompliant children were identified and compared on a wide range of earlier and concurrent measures. Compliant children were more easily aroused as infants. They were less apathetic and less distractible at 42 months alone in a problem-solving task and were more compliant with their mothers at that age. Compliant children had higher developmental quotients at age two than did noncompliant children. (This was not true for girls, however.) Mothers of compliant children were sensitive to their infants' cues and signals, were supportive and helpful to their two-year-olds in a problem-solving task, were confident in their ability to work successfully with their 42-month-old children in a teaching situation, and had a high degree of involvement at home with their children. Their homes were organized and included age-appropriate play materials for the children. A majority of children classified as having a secure attachment at 12 and 18 months were in the compliant group in preschool, while children classified as anxious-avoidant at 12 and 18 months were likely to be in the noncompliant preschool group. In general, these findings highlight the importance of a warm, secure, supportive relationship between caregiver and child, within the context of a stimulating but organized learning environment at home, in fostering the child's compliance in preschool. Concurrent measures showed that compliant children also had better ego control, displayed less negative emotion and more positive affect in preschool than did noncompliant children. Among noncompliant children there was considerable variability on these measures.

Rudimentary to the socialization process is the young child's compliance with directions and suggestions of parents and other adult authority figures. By the preschool period (age 3-4+) children typically are capable of complying with direct commands as well as with previously learned rules at home and in the preschool setting. Yet there is wide variability in compliance among children, and researchers long have sought to identify factors which might account for these individual differences.

A substantial body of research has examined parental discipline styles associated with compliance. While the findings of these studies are varied, this research generally has shown that firm, authoritative limit-setting within a warm, loving environment fosters compliance and cooperation. Hostile, power-assertive techniques of discipline are associated with noncompliance, aggression, and other antisocial behavior (Becker, 1964; Hoffman, 1963). More recent studies have shifted from a focus on the unidirectional influence of parent on child to a consideration of reciprocity and bidirectional influence in the parent-child relationship. Using direct observation to assess parent-child interaction in the first years of life, some of these studies have found compliance to be related to maternal responsiveness and sensitivity to the infant's cues and signals (Stayton, Hogan, & Ainsworth, 1971; deVries & deVries, 1977; Erickson & Crichton, 1981) and to the formation in the first 12-18 months of life of a secure mother-infant attachment (Main, 1975; Matas, Arend, & Sroufe, 1978; Joffe, 1981; Erickson & Crichton, 1981).

The present study is based on the same sample from which Joffe (1981) and Erickson and Crichton (1981) drew their subjects. By examining child characteristics, maternal characteristics, child and mother behaviors in interactional situations, and environmental factors, we attempt to identify some antecedents and concomitants of children's compliance in a preschool setting. And while the earlier assessments of these children found a relationship between attachment and the 1-2-year-old child's compliance with the mother, we wanted to determine if attachment also was related to the child's compliance at a later age and with other adults (preschool teachers and child care providers in this case).

Method

Subjects

The findings presented here are based on the Mother-Child Interaction Project at the University of Minnesota, a prospective longitudinal study designed to determine the infant, parental, interactional and environmental factors that account for developmental outcomes for a sample of high-risk children. Principal investigators are Byron Egeland, Alan Sroufe, and Amos Deinard.

A sample of 267 mothers was selected from primaparous pregnant women seen at the Minneapolis Public Health Clinic and considered to be at risk for later caretaking problems. Risk factors included low socioeconomic status, low educational level (41% had not completed high school at the time of baby's birth), age ($\bar{X}$ = 20.5, range = 12-34), lack of support (62% single at the time of baby's birth), chaotic living conditions and a high degree of life stress. Eighty-six percent of the pregnancies were unplanned. Eighty percent of the mothers were White, 13% were Black, and 7% were Hispanic or Native American. Fifteen percent of the children were of mixed racial background. Data collection began with assessments of maternal personality and attitudes during the 36th week of pregnancy and has included observation of the neonate, interviews with mother every six months, periodic testing of the child, and observation of the mother-child interaction in a variety of natural and laboratory situations.

At 4-1/2 to 5 years of age 96 of the children were observed extensively in preschool. Forty children attended a special laboratory school at the university while 56 others attended preschools or daycare centers throughout the Twin Cities area. From this subsample of 96 children a group of highly compliant children (N = 31) and a group of extremely noncompliant children (N = 22) were selected. These groups were selected by two independent judges and selection was based on the child's scores on the following measures: a seven-point rating scale of compliance, completed by observer(s) not acquainted with the child; the same scale completed by a teacher or child care provider; a compliance-related item from the Preschool Behavior Questionnaire (Behar & Stringfield, 1974); and selected items from the California Q-Sort (Block, J. H. & Block, J., 1979). If the child's score on any of these measures raised a question about the child's classification as compliant or noncompliant, the child was not included in these groups. The compliant child was defined as one who actively oriented toward the teacher's directions, complying promptly with most instructions. While s/he sometimes questioned a direction or suggested an alternative, this was seen to reflect autonomy within a compliant orientation.

Procedure

Assessment of Child Characteristics: To assess characteristics of the young infant, three techniques were used. First, naturalistic observations were made by nurses in the newborn nursery who then rated each infant on such factors as activity level, alertness, contentment, and ease of care. Second, the Neonatal Behavioral Assessment Scale (Brazelton, 1973) was administered to each infant seven and ten days after birth. This scale consists of 21 reflex

and 26 behavioral items, which assess habituation to repeated stimuli, orientation to inanimate and animate stimuli, motor maturity, state control, and physiological regulation. Third, when the infants were six months old, each mother completed the Carey Infant Temperament Questionnaire (1970). This measures the mother's perception of her baby's activity, rhythmicity, adaptability, approachability, intensity, mood, distractibility, persistence, and the general difficulty or ease of caring for her infant.

At 24 months, the Bayley Scales of Infant Development (1969) were administered. And when the children were 42 months of age they were given the Preschool Language Scale (Zimmerman, Steiner, & Pond, 1979), which assesses auditory comprehension and verbal expression.

Also at 42 months of age the children were videotaped in the Barrier Box situation, a task designed to assess how the children cope independently in a problem-solving situation. Each child was observed for ten minutes as s/he attempted to obtain attractive toys which were locked inside a clear plexiglass box. A project assistant was present in the room, but provided no help to the child. Alternatives for the child were limited in that only a few relatively undesirable toys were outside the box; thus, the child was encouraged to persist in his/her efforts to open the box. Each child was rated on a three- to seven-point scale on the following variables: self-esteem, ego control (how well the child appeared to contr-l his/her impulses and modulate responses), apathy/withdrawal, flexibility, creativity, agency (the child's confidence and assertiveness in approaching the task), hyperactivity/distractibility, dependency on the project assistant for help and support, directness and intensity of help-seeking, and positive and negative affect. In addition to these rating scales, the child's persistence was measured by computing the proportion of time s/he spent on task.

When the children were 4-1/2 to 5 years of age, they were observed extensively in their preschool or daycare setting. Using seven-point scales, observers rated the children on the following dimensions: agency (how confidently and assertively the child deals with the environment), ego control (how the child monitors impulses and modulates his/her responses to the preschool environment), dependency on teachers for support and nurturance, social skills in the peer group, positive affect, negative emotional tone, and compliance with teacher's directions and suggestions.

Assessment of Maternal Characteristics: During the 36th week of pregnancy each mother completed a battery of tests assessing certain personality characteristics, and her needs, expectations and perceptions regarding childbirth and parenting. The Personality Research Form (Jackson, 1967) was used to measure aggression, defendence, impulsivity, succorance, and social desirability.

Maternal anxiety (IPAT, Cattell & Scheier, 1963) and locus of control (Rotter, 1966) also were assessed. The Pregnancy Research Questionnaire (Schaefer & Manheimer, 1960) and the Maternal Attitude Scale (Cohler, Weiss, and Grunebaum, 1970) measured such characteristics as emotional reactions to pregnancy, attitudes toward childrearing, interpersonal maturity, and understanding of the psychological complexity of parenthood. These measures were selected on the basis of demonstrated reliability and validity as well as the ease with which they could be administered to adults with limited reading skills.

Following the birth of their babies, mothers were observed by nurses in the maternity ward. Based on these naturalistic observations, nurses rated the mother's degree of interest in her newborn infant.

Assessment of Mother-Child Interaction: When the infant was six months of age, observers visited the home to observe mother and child in two feeding situations. Thirty-three variables were rated using seven- or nine-point scales. Observed behaviors included maternal expressiveness, positive regard, negative regard, facility in caretaking, quality of physical contact, sensitivity, cooperation, quality of verbalization and baby's social behavior. Raters met weekly to ensure adequate reliability in their observations.

At 12 and 18 months, the quality of mother-infant attachment was assessed by means of the Strange Situation (Ainsworth, Blehar, Waters, & Wall, 1978). This is a 20-minute videotaped procedure consisting of eight episodes in which the infant is observed in an unfamiliar room filled with toys, with an unfamiliar adult female in the room, both with the mother present and absent. Infants are classified into three major groups (A, B, C), primarily on the basis of their behavior during the reunion episodes following separation from mother. Securely attached infants (group B) greet their mother positively, actively seek proximity or interaction with the mother, accept comfort from the mother if distressed, and display few, if any, negative behaviors toward her. These infants typically explore and play during the pre-separation episodes, evidence that the mother provides security in the unfamiliar environment. Infants who exhibit substantial negative behavior toward the mother during the reunion episodes are classified as anxiously attached (groups A and C). Infants are classified in group A when they avoid the mother by turning away, looking away, ignoring her. Group C infants show angry resistance to their mothers upon reunion. They often exhibit a high level of distress during separation or even when mother is present. Upon reunion they often appear ambivalent, actively seeking proximity with the mother, yet angrily pushing her away.

At 24 months of age the children and their mothers were videotaped in a series of tool-using/problem-solving tasks of increasing difficulty. In each task, a small toy or candy was visible inside

a clear plexiglass container, but was accessible to the child only if s/he used a tool in a specific way to retrieve the prize. The last two tasks were too difficult for a two-year-old to solve without help. The mother was instructed to help her child when she felt she needed to. These tasks were designed to tax the child in order to assess how the mother and child work together, how the child makes autonomous efforts to solve the problems as well as how the child uses the mother for support and guidance in a potentially frustrating situation. Assessments of the mother focused on the emotional support and the clarity and quality of assistance she offered her child. Children were rated on five- to seven-point scales on the following variables: dependency on mother, noncompliance with maternal directions and suggestions, anger and frustration (toward mother and toward the environment in general), persistence, strategies for coping with the challenges and frustrations of the situation, and enthusiasm for the tasks.

When the children were 42 months old, they were observed with their mothers in four learning tasks which were difficult enough to require that the mother use some teaching strategies to enable the child to complete the tasks. In the first task, the child was asked to construct copies of a large wooden block, using smaller blocks of various shapes. In the second task, the mother asked the child to name as many things with wheels as s/he could think of. The third task was a color and shape-matching task, and the final task required the child to use an Etch-a-Sketch to trace a maze drawn on the screen of the Etch-a-Sketch. Mothers were rated on seven-point scales on their supportive presence, respect for the child's autonomy, structure and limit-setting, hostility toward the child, quality of the mother's instruction (e.g., clarity, timing of cues), and the general sense of confidence conveyed by the mother's behavior in this situation. Children were rated on the following dimensions: persistence, enthusiasm for the tasks, anger/negativity (toward mother and/or the environment in general), compliance with maternal suggestions and directions, general quality of experience in the situation, reliance on mother for help and support, affection for mother, and avoidance of mother. Mother and child both were rated by two observers whose scores were added together, yielding scores ranging from two to 14. In cases where observers disagreed by two or more points, ratings were decided by conference and/or a third observer.

Assessment of Environmental Variables: When her child was 42 months old, each mother was given the Life Events Scale (Egeland, Breitenbucher, & Rosenberg, 1980), which rated the occurrence of 44 events during the previous 12 months. Items dealt with such things as financial problems, difficulty with welfare, a boyfriend's moving out, and an increase in arguments with a friend, events typically considered to be stressful.

At the same time the Life Events Scale was administered, observers used the Caldwell Home Inventory (1979) to assess the quality of the home environment and the degree of stimulation provided for the child. This inventory assesses the mother's responsivity to her child, avoidance of restrictions in the environment which might impede the child's development, organization of the home environment, provision of age-appropriate play material, degree of the mother's involvement with the child, and opportunities for the child to engage in a variety of activities.

Results

A disproportionate number of boys (17 of 22) were among the group of noncompliant preschoolers (see Table 1). Fourteen boys and 17 girls comprised the compliant group ($X^2 = 5.47$, $p = .019$). (Of the original 96 children observed in preschool, 52 were boys.) To determine the antecedents and concomitants of compliance, compliant and noncompliant groups of preschoolers were compared on all measures of child, maternal, interactional, and environmental variables. Tests of mean differences also were run separately for boys and girls. Results are presented in Tables Two through Six and will be described here. (Variables on which there were no significant differences were excluded from the tables.)

Child Characteristics: A number of child characteristics and behaviors assessed apart from interaction with their mothers were found to discriminate between compliant and noncompliant children (see Table 2). When compliant and noncompliant preschoolers were compared on neonatal assessments (nurses' ratings of temperament and factor scores derived from the Brazelton Neonatal Behavioral Assessment Scale, 1973), a significant difference was found on only one variable, the Brazelton arousal factor. Compliant children were more easily aroused as newborns than noncompliant children ($t = 2.79$, $p = .008$). When analyses were run separately by sex, compliant boys also tended to be more easily aroused than noncompliant boys ($t = 1.90$, $p = .08$). For girls this difference did not approach significance. However, noncompliant girls had better physical ability factor scores on the Brazelton, suggesting better muscle tone, strength, and coordination as infants than compliant girls ($t = 3.70$, $p = .008$). On the Carey Infant Temperament Questionnaire (1970) completed by mothers when their infants were six months old, there were no significant differences between compliant and noncompliant groups.

On the Bayley Scales of Infant Development (1969), administered at 24 months, compliant children obtained significantly higher scores than noncompliant children ($t = 2.37$, $p = .022$). While this was true also for boys alone ($t = 1.83$, $p = .08$), mean scores on the Bayley were almost identical for compliant and noncompliant girls.

Differences on the Preschool Language Scale (Zimmerman, Steiner, & Pond, 1979) only approached significance for the auditory scale ($t = 1.68$, $p = .099$) and were not significant for the verbal scale nor the total language scale. Compliant children demonstrated better auditory comprehension than did noncompliant children. Differences were not significant when analyses were run separately for boys or girls.

At 42 months in the Barrier Box situation, noncompliant children displayed more apathy and withdrawal from the task ($t = -2.58$, $p = .013$) and were more hyperactive and distractible than were compliant children ($t = -2.97$, $p = .005$). Other variables in this situation (e.g., persistence, ego control, self-esteem, affect, agency, help-seeking, flexibility, and creativity) did not discriminate between compliant and noncompliant children. For boys findings were similar, with noncompliant boys more apathetic and withdrawn ($t = -3.91$, $p = .001$) as well as hyperactive and distractible ($t = -2.28$, $p = .03$). For girls, differences between compliant and noncompliant groups in the Barrier task were even more striking. Noncompliant girls were much more hyperactive and distractible than were compliant girls ($t = -5.74$, p less than .001). They also were less flexible in their approach to the problem ($t = 2.60$, $p = .018$) and tended to show poorer ego control ($t = 1.91$, $p = .07$).

Significant differences were found between compliant and noncompliant children on a number of concurrent preschool measures. Complaint children demonstrated better ego control, exhibited more positive affect, and expressed less negative emotion (all p less than .001). Compliant children also tended to have better social skills with peers than did noncompliant children ($t = 1.92$, $p = .06$). There were no significant differences on agency or dependency in the preschool setting. When compliant and noncompliant boys were compared on concurrent preschool measures, compliant boys displayed more ego control, more positive affect, and less negative emotion than did noncompliant boys (all p less than .001). For girls a difference approaching significance was found only on negative emotional tone with noncompliant girls tending to express more negative emotion than compliant girls ($t = -2.97$, $p = .059$).

Maternal Characteristics: Mothers of compliant and noncompliant children did not differ much when assessed apart from interaction with their children (see Table 2). When compliant and noncompliant children were compared for mean age and educational level of mothers at time of delivery, there were no differences. Nor were there differences between mothers of compliant and noncompliant children on factors derived from prenatal personality assessments (impulsivity/anxiety, emotional reactions to pregnancy, understanding of the psychological complexity of parenting, and hostility/suspicion). Only

the mother's interest in her newborn, as assessed by nurses in the maternity ward, approached significance in discriminating between compliant and noncompliant groups. Mothers of compliant children tended to show more interest in their infants than did mothers of noncompliant children ($t = -1.79$, $p = .08$). For compliant boys their mothers showed significantly more interest in them as infants ($t = -2.69$, $p = .015$), but for girls there were no significant differences between compliant and noncompliant groups on maternal characteristics.

Mother-Child Interaction: Both mother and child behaviors in interaction situations were important in discriminating between compliant and noncompliant children (see Table 3). In the six-month feeding situation, mothers of compliant children were more sensitive to the cues and signals of their infant than were mothers of noncompliant children ($t = 2.04$, $p = .04$). These mothers also tended to display better caretaking skills ($t = 1.94$, $p = .059$) than did mothers of noncompliant children. There were no significant differences on maternal cooperation, affective behavior, nor baby's social behavior. For boys results were similar, with mothers of compliant boys rated higher on sensitivity ($t = 2.03$, $p = .052$) and caretaking skills ($t = 1.75$, $p = .09$). For girls only baby social behavior approached significance, with noncompliant girls engaging in more social behavior during feeding than did compliant girls ($t = -1.95$, $p = .09$).

Development of a secure mother-infant attachment appears to facilitate compliance, while an anxious-avoidant pattern of attachment is associated with noncompliance in preschool. Chi-square analysis of compliant and noncompliant groups by attachment classification approached significance ($X^2 = 5.83$, $p = .054$) for children whose attachment classification was stable from 12 to 18 months (see Table 4). Of eight children classified as anxious-avoidant at 12 and 18 months, six were in the noncompliant group in preschool. Only seven of 23 securely attached children were noncompliant and one of five children classifi-d as anxious-resistant at 12 and 18 months was noncompliant in preschool.

In the tool-using situation when their children were 24 months old, mothers of compliant children were significantly more supportive ($t = 3.47$, $p = .001$) and provided better quality of assistance ($t = 2.62$, $p = .012$) to their children (see Table 3). For boys differences between mothers of compliant and noncompliant children were even more striking on these variables ($t = 3.63$, $p = .001$ and $t = 2.93$, $p = .008$ respectively). For girls, however, there were no significant differences on these maternal behaviors. In fact, mean ratings of quality of assistance were almost identical for mothers of compliant and noncompliant girls. None of the child behaviors in the tool-using situation at 24 months (dependency, noncompliance, frustration, anger, persistence, coping, enthusiasm) discriminated between compliant and noncompliant preschoolers for the total sample nor for boys or girls separately.

In the teaching tasks at 42 months, mothers of compliant children were judged to be more confident that they could work effectively with their children than were mothers of noncompliant children ($t = 2.13$, $p = .039$). These mothers also tended to be less hostile toward their children ($t = -1.93$, $p = .064$), demonstrated better teaching skills ($t = 1.69$, $p = .098$), and were somewhat more structured and consistent in limit-setting ($t = 1.68$, $p = .10$) than were mothers of noncompliant children. Differences on mother's supportive presence and respect for her child's autonomy were not significant. Compliant preschoolers were more compliant with their mothers in the teaching tasks ($t = 2.18$, $p = .036$) than were noncompliant preschoolers. Compliant children also tended to be more persistent ($t = 1.95$, $p = .058$), expressed less anger and negativism toward their mothers ($t = -1.96$, $p = .06$), were more affectionate with their mothers ($t = 1.84$, $p = .07$), and generally had a better experience in the teaching situation with their mothers ($t = 1.99$, $p = .054$). No significant differences were found on the child's enthusiasm, reliance, or avoidance of mother. When analyzed separately by sex, different patterns of interaction emerged. Mothers of compliant boys were structured in their approach to the teaching tasks and set consistent limits for their children ($t = 2.17$, $p = .038$). They were less hostile than mothers of noncompliant boys ($t = -2.12$, $p = .046$), conveyed a greater sense of confidence ($t = 2.14$, $p = .04$), and tended to use more skillful teaching techniques ($t = 1.74$, $p = .094$). Compliant preschool boys appeared somewhat more affectionate toward their mothers ($t = 1.75$, $p = .092$) than did noncompliant boys. It is interesting to note that the difference between compliant and noncompliant preschool boys on compliance at 42 months with their mothers is not statistically significant ($p = .12$). (In fact, the mean compliance rating at 42 months for compliant preschool boys is slightly lower than the mean compliance rating at 42 months for noncompliant preschool girls.) For girls, there were no significant differences between compliant and noncompliant groups on maternal behaviors in the teaching situation. Among the child behaviors assessed in these tasks at 42 months, only reliance on mother discriminated between groups. Compliant preschool girls were more reliant on their mothers than were noncompliant girls ($t = 2.28$, $p = .034$).

Environmental Factors: Comparison of compliant and noncompliant groups suggests that quality of the home environment is important in fostering compliance in preschool (see Table 5). There were no significant differences between compliant and noncompliant children on scores on the 42 month Life Events Scale, neither for the entire sample nor for boys or girls separately. However, the Caldwell Home Inventory was useful in discriminating between compliant and noncompliant children. Compliant children came from homes which were more organized ($t = 2.84$, $p = .007$) and where age-appropriate play materials were provided ($t = 2.71$, $p = .01$). The mothers of

these children were more involved with their children during this home observation at 42 months ($t = 3.23$, $p = .003$) and the homes were judged to be generally more stimulating to healthy development (Caldwell total score) than were homes of noncompliant preschoolers ($t = 3.02$, $p = .004$). For boys and girls separately, differences on organization of the home environment only approached significance ($t = 1.73$, $p = .095$ and $t = 2.14$, $p = .085$, respectively). For girls there were no other significant differences on the Caldwell. However, for boys, compliant children were provided with appropriate play materials ($t = 2.33$, $p = .028$) and had mothers who were involved with them ($t = 2.84$, $p = .009$). Perhaps the most striking difference in the results for boys and girls was the finding that, for boys only, mothers of compliant children were more responsive than mothers of noncompliant children ($t = 2.49$, $p = .02$). For girls, on the other hand, the difference in responsivity between mothers of compliant and noncompliant children was negligible.

Conclusion

In summary, compliant and noncompliant children show a number of marked differences in developmental history. As neonates, compliant children were more easily aroused. While there were no significant differences between mothers of compliant and noncompliant children as to age, education, or personality characteristics assessed prenatally, mothers of compliant children were judged by nurses to be more interested in their newborn infants than were mothers of noncompliant children. These mothers also were more sensitive to the cues and signals of their babies in six-month feeding situations and demonstrated better caretaking skills.

The development of a secure attachment relationship between mother and child in the first 12 to 18 months of life facilitates compliance, while children who exhibit an anxious-avoidant pattern of attachment are likely to be noncompliant in the preschool. This is consistent with previous research with this sample (Joffe, 1981; Erickson & Crichton, 1981), and it extends these findings to a later age and a situation with an adult other than mother.

Mothers of compliant children demonstrated a high quality of assistance (clear, well-timed, non-intrusive) and offered warm support and encouragement to their two-year-olds in a potentially frustrating problem-solving task. Interestingly, child behaviors at this age did not predict compliance in the preschool. This probably is due in part to the nature of two-year-olds. It is normal at this age for the child to be in a state of flux, feeling ambivalent, wanting to explore and test limits, yet still needing to lean on mother. Perhaps behavior at this relatively volatile age is not a good indicator of the child's later behavior. Yet how the mother helps the child negotiate this stage is very important.

Developmental level at age two, assessed by the Bayley Scales of Infant Development (1969), was higher for the compliant children than for noncompliant children. This was not true, however, for girls in this sample. Compliant children also tended to have better auditory comprehension at 42 months than did noncompliant children, but this finding was not statistically significant. While a certain level of cognitive ability and auditory comprehension skills are no doubt requisites for compliance, socio-emotional measures appear to be more important in explaining differences between compliant and noncompliant children.

Alone in the Barrier Box situation at 42 months, noncompliant children looked both apathetic/withdrawn and hyperactive/distractible. The pattern of hyperactivity and distractibility was particularly striking for girls. Noncompliant girls also looked less flexible and tended to have poorer ego control in their approach to this task.

In teaching tasks when their children were 42 months of age, mothers of compliant children were judged to be more confident in their interaction with their children and they tended to provide clearer, well-timed instruction. For compliant boys, mothers structured the tasks well, set clear, consistent limits, and expressed little or no hostility toward their children. Children who were compliant in the preschool also were compliant at 42 months with their mothers. These children also tended to be persistent, affectionate with their mothers, displayed little negative emotion, and had a generally positive experience, working in pleasant collaboration with their mothers on this series of tasks. Girls who were compliant in the preschool were more reliant on their mothers for help and support at 42 months than were noncompliant preschool girls.

The home environments of compliant children were well-organized and equipped with a variety of age-appropriate play materials. Mothers of these children showed a high degree of involvement with them, providing adequate stimulation to facilitate the child's healthy development. Mothers of compliant boys were observed to be more responsive to their children at home than were mothers of noncompliant boys.

Far more boys than girls were in the noncompliant group of preschoolers. While there were too few noncompliant girls on which to base firm conclusions, there were some apparent trends in the analyses performed separately by sex. Maternal attitudes and behaviors tended to play a more important role in determining whether boys would be compliant or noncompliant in preschool. Mother's interest in newborn, supportive presence and quality of instruction at 24 months, structure and limit-setting and hostility at 42 months, and responsivity of mother as observed in the home were highly significant in discriminating between compliant and non-compliant preschool boys. These maternal behaviors played a less

important role for girls. Noncompliant girls were strong and coordinated as neonates and they tended to engage in more social behavior with their mothers during feeding at six months than did compliant girls. By 42 months these noncompliant girls looked hyperactive and extremely distractible in the Barrier Box situation and lacked flexibility in their approach to this task. When compliant and noncompliant preschool girls were compared in the teaching situation with their mothers, their compliance scores did not differ significantly. In fact, the mean compliance score in the teaching tasks for noncompliant preschool girls actually was higher than the mean compliance score in that situation for compliant preschool boys. Girls who were noncompliant in preschool also were less reliant on their mothers for support and help in completing the teaching tasks at 42 months than were girls who were compliant in preschool. The picture which emerges for noncompliant girls is that of children who are unable to focus their attention and independently pursue a task to completion. While they are compliant in the one-to-one laboratory situation with their mothers, these girls apparently have difficulty functioning in the more distracting preschool environment and thus resort to noncompliance.

Concurrent measures of compliant and noncompliant preschoolers show that compliant children also are more successful in modulating their responses to the stimulating preschool environment (ego control), display more positive affect, express less negative emotion, and tend to have better social skills with peers. However, among noncompliant preschoolers there was considerable variability on all concurrent measures, particularly ego control, dependency, and negative emotion. Close examination of the data suggests various patterns of noncompliance (e.g., angry/noncompliant, inattentive/noncompliant, socially withdrawn/noncompliant). Future research might focus on identification of such patterns, exploring possible differences in developmental history among children presenting these patterns of noncompliant behavior.

In general, the findings of this study highlight the importance of a warm, secure, supportive relationship between caregiver (mother) and child, within the context of a stimulating but organized learning environment at home, in fostering compliance in the preschool. The child's acceptance of the authority of other adults (teachers, daycare providers) seems to be influenced strongly by the patterns of interaction established between caregiver and child early in life.

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Table 1

Contingency Table for Compliant

and

Noncompliant Children by Sex

	Boys	Girls	Row Total
Compliant	14	17	31
Noncompliant	17	5	22
Column Total	31	22	53

Chi Square = 5.47, p = .019

Table 2

Mean Scores for Compliant and Noncompliant Children on Child and Maternal Variables Assessed Separately

	Total Sample		Boys Only		Girls Only	
	Compliant	Noncompliant	Compliant	Noncompliant	Compliant	Noncompliant
Child Characteristics						
Neonatal Assessments:						
Brazelton Arousal	.22	-.37*	.10	-.51	.29	.24
Brazelton Physical Ability	-.57	-.17	-.75	-.40	-.46	.80**
24-Month Assessments:						
Bayley Scales	107.94	94.24**	107.50	91.06	108.29	107.75
42-Month Barrier Box Situation:						
Apathy/Withdrawal	1.84	2.59*	1.36	2.71**	2.24	2.20
Flexibility	2.61	2.36	2.57	2.53	2.65	1.80*
Hyperactivity/Distractibility	2.52	3.73**	2.21	3.24*	2.76	5.40**
Preschool Ratings:						
Ego Control	4.74	3.09**	5.08	3.18**	4.47	2.75
Positive Affect	5.31	3.70**	5.29	3.63**	5.47	4.00
Negative Emotion	1.58	4.60**	1.29	4.56**	1.82	4.75
Compliance (Used for group selection)	6.45	3.40**	6.36	3.31**	6.53	3.75*
Maternal Characteristics						
Interest in Newborn (low score= high interest)	-.25	.33	-.62	.41*	.12	.02

*Significance less than .05

**Significance less than .01

Only variables on which there was a significant difference are listed here.

Table 3

Mean Scores for Compliant and Noncompliant Children on Mother-Child Interaction Variables

	Total Sample		Boys Only		Girls Only	
	Compliant	Noncompliant	Compliant	Noncompliant	Compliant	Noncompliant
Six-month Feeding:						
Maternal Sensitivity	6.03	5.12*	6.21	5.00	5.88	5.50
24-month Tool Using:						
Supportive Presence	8.70	6.00**	9.50	5.75**	8.07	7.33
Quality of Assistance	7.93	5.94*	8.67	5.71**	7.33	7.00
42-month Teaching Tasks, Maternal Behavior:						
Structure/Limits	9.84	8.57	10.21	8.44*	9.53	9.00
Hostility	2.71	3.71	2.36	3.69*	3.00	3.80
Confidence	9.10	7.24*	9.29	7.06*	8.94	7.80
42-month Teaching Tasks, Child Behavior:						
Compliance	10.06	8.10*	9.29	7.56	10.71	9.80
Reliance on Mother	6.90	7.33	7.50	8.13	6.41	4.80*

*Significance less than .05

**Significance less than .01

Only variables on which there was a significant difference are listed here.

Table 4

Contingency Table for Compliant and Noncompliant Children by Attachment Classification at 12 and 18 Months*

	Anxious-Avoidant	Securely Attached	Anxious-Resistant	Row Total
Compliant	2	16	4	22
Noncompliant	6	7	1	14
Column Total	8	23	5	36

Chi Square = 5.83, p = .054

*Only children whose classification was the same at 12 and 18 months were used in this analysis.

Table 5

Mean Scores for Compliant and Noncompliant Children
on Environmental Variables

	Total Sample		Boys Only		Girls Only	
	Compliant	Noncompliant	Compliant	Noncompliant	Compliant	Noncompliant
42-month Caldwell HOME Inventory:						
Maternal Responsivity	8.48	7.10	9.62	7.00*	7.56	7.40
Organization of Home Environment	5.48	4.86**	5.46	4.94	5.50	4.60
Provision of Play Material	10.31	8.62**	10.54	8.81*	10.13	8.00
Maternal Involvement	4.62	2.81**	4.85	2.81**	4.44	2.80
Caldwell Total	34.79	27.81**	36.92	28.19**	33.06	26.60

*Significance less than .05

**Significance less than .01

Only variables on which there was a significant difference are listed here.